Prospectus for Highway Needs and Fiscal Study

State of New Jersey

Wilbur Smith and Associates
Consulting Engineers

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PROSPECTUS

FOR

HIGHWAY NEEDS AND FISCAL STUDY

STATE OF NEW JERSEY

Prepared for

New Jersey State Highway Department

by

Wilbur Smith and Associates

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Wilbur Smith and Associates

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CONSULTING ENGINEERS

495 ORANGE STREET
New Haven, Conn.

July 3, 1965

Mr. J. R. Schuyler
State Highway Engineer
New Jersey State Highway Department
1035 Parkway Avenue
Trenton, New Jersey

Dear Mr. Schuyler:

As requested in the meeting in your office on June 30 we are pleased to submit this prospectus for a comprehensive study of highway needs and finance for the State of New Jersey.

The prospectus has been developed, we believe, to conform with your requirements and desires and outlines the general procedures and aspects of the several major phases of the study.

We have outlined the basic qualifications and experiences of our firm in similar studies and are attaching a copy of our firm brochure which lists some of the studies we have completed as well as a list of our professional staff personnel and their qualifications.

Throughout the work we would expect to make maximum use of information and materials that are available through the New Jersey State Highway Department and other state and local agencies.

We appreciate your consideration and trust we will be afforded the opportunity of discussing this with you in more detail at an early date.

Respectfully submitted,

WILBUR SMITH AND ASSOCIATES

James M. Smith

James M. Smith

PROSPECTUS

FOR

HIGHWAY NEEDS AND FISCAL STUDY

STATE OF NEW JERSEY

The increased use of motor vehicles in today's economy has resulted in greatly increased demands for highway facilities to provide safe and efficient travel. The tremendous growth in travel has resulted in increased revenues from highway user's taxes and at the same time has produced greater demands for construction of new highway facilities and rehabilitation of existing facilities.

Population growth and urbanization have created problems for highway planning in a trend which has been accelerating since the end of World War II. Much of the state's recent economic growth has been focused on the larger cities. This growth should be encouraged by concerted efforts to solve the resultant highway problems. Local governmental units, both rural and urban, need planning guidance and financial aid if they are to economically and efficiently provide the service expected by the motoring public.

This prospectus outlines a comprehensive engineering analysis of the highway, road, and street systems of New Jersey, the agencies that administer them, and the financial resources

on which they are dependent. The proposed studies can be logically subdivided into the following major phases:

A. Classification- The classification of highways, roads and streets into systems providing similar types of service is important to facilitate the assignment of operational and financial responsibility at the most appropriate level of government. The relative importance of the several systems influence the allocation of revenues and the priority of development.

B. Needs- The measurement of highway needs, including the cost of constructing adequate systems to serve present and future (20 years) traffic and the costs of maintaining and administering such systems provides the necessary base for long-range planning. Needs programs will be developed in increments of 5, 10, 15, and 20 years.

C. Urban Highways- Problems relating to the planning of urban highways should be carefully reviewed, particularly in view of the vast amount of comprehensive origin and destination study data which have already been collected or are being collected throughout the state. Aspects of the urban problem

include the division of responsibility for necessary services among state and local government units and the selection of adequate freeway locations. Highway development within the urban areas will greatly influence the future economic development of the cities. Planning for urban highways must consider the influence of other modes of transportation for the movement of both people and goods.

D. Finance- Fiscal investigations and analyses will provide a means of relating revenues for highway purposes to the financial requirements determined in the needs phase of the study. Local, state, and federal sources of revenue expended for highway purposes should be thoroughly investigated to determine present allocations and distribution. Sources and amount of revenue would be projected for 20 years based on vehicle usage and ownership and on legislative requirements. Various bases for distribution of revenues to local governmental subdivisions should be analyzed in relation to practices and financial requirements as determined in the needs study.

E. Federal Aid- Federal aid system classification, its relationship to the over-all classification of all highways, roads, and streets, and apportionment of federal funds to state and local units should be analyzed in conjunction with the determinations of needs, system classification, and highway finance. Consideration of federal aid procedures and apportionments must reflect federal highway law and the findings of the study relating to highway administrative policies and the state laws affecting such policies.

F. Economy- Studies of transportation economy should be made to establish the level of service desired and the position of highways in the total transportation framework. The rate of economic growth is influenced by the adequacy of transportation facilities and in turn economic activity creates demand for transportation services.

G. Administration- Analyses of administrative procedures and organization should be made to determine the adequacy of present organizations in terms of current emphasis on highway transportation. Estimates of needs and revenues are predicated on efficient administration at each level of government.

System classification presupposes that each system will be administered at the level of government most directly concerned with the type of service being provided. The responsibility for the administration of this program by each jurisdiction or level of government will be included.

H. Continuing Process- Plans and procedures should be developed for the periodic updating of all data.

System Classification

A study of highway, road, and street system classification would include:

(1) An analysis of the use of the various highway systems in New Jersey in terms of traffic volumes, travel patterns and characteristics, composition of traffic, and other related factors.

(2) An examination of the existing legal and administrative classification of roads and streets to determine the extent to which re-routings of present systems would be desired or necessary in the interest of economy, improved service to the public, and more efficient management.

(3) Selection of study systems based on such criteria as system continuity, traffic volumes, optimum trip routings, service to population centers, and

recreational and industrial activities. Attention will be given to the identification of a system of major highways which should be improved to freeway standards to supplement the service now being provided by Interstate highways, toll roads, and other freeways.

(4) To enable appropriate testing of various systems, and to assist in the analysis of the advantages of alternate systems, a mathematical model would be developed for use in synthesizing patterns and volumes of travel throughout the State of New Jersey, and the assigning of the vehicle components of such trips to alternate statewide networks. The model would be designed to predict travel volumes and patterns that would take place throughout the state outside of the urban areas. The model would be tested and calibrated by comparisons of current year synthetic travel with known traffic volumes at selected screenlines and other locations within the state.

Highway Needs

The highway needs study would include the following major phases:

(1) Determination of tolerable physical conditions for existing highways, roads, and streets, and appropriate design standards for future construction. Standards based on such factors as roadway and shoulder widths, type of cross-section, surface type, alignment criteria, operating speeds, structure loadings, and other criteria would be developed in establishing the level of service required for each of the various classification systems.

(2) Preparation of procedure manuals detailing the methods of inventory, appraisal and re-appraisal, and cost estimating on each system.

(3) Measurement of existing and future deficiencies on each road system. On the major systems, including state highways, county arterial highways, and urban arterial streets, the determination of needs would be based on a complete physical inventory. On local rural roads and urban access streets, the determination of needs would be based on an analysis en-masse of the total road inventory and related to conditions observedon selected field samples. Comprehensive and uniform data would be compiled detailing the

physical characteristics and conditions of the roads and structures, and the ability of these facilities to accommodate projected traffic usage. Needed improvements would be ascertained and cost estimates prepared on the basis of design standards for each system and current construction cost experiences.

(4) In the determination of needs in urban areas, special attention would be given to the problems of over-all urban planning, the interaction of the various highway and street systems within the urban area, and the influence of highways on the future development of the urban complex.

(5) Based on road-life experience in New Jersey and other comparable states, a determination would be made of the cost for unidentifiable replacement construction on roads and streets which will become obsolete during the study period.

(6) Determination ofallowances for stop-gap or minor betterments and extraordinary maintenance necessary to retain deficient road sections in service during a deferral period would be made.

(7) Based on a review of current practices, a determination would be made of annual maintenance requirements for adequate maintenance of all systems, taking into account the recommended physical improvements and the trends in maintenance procedures and standards.

(8) Administrative overhead requirements on all systems would be developed.

(9) The highway safety problem, insofar as it is related to design standards, maintenance practices, enforcement, and traffic engineering would be analyzed.

(10) Alternate needs programs for construction, maintenance and operation will be developed for the various road and street systems.

(11) Maximum use would be made of needs data which are currently under development on selected systems of highways and in urbanized areas. Procedures for determining needs on other road and street systems would be formulated to ensure consistency of total need.

Highway Finance

The fiscal study phase would include:

(1) A critical examination and review of all existing highway-user tax laws.

(2) A determination of the total amount of tax contributed annually by each of the various motor vehicle classifications and by the general public.

(3) Allocation of cost responsibility for highways, using various accepted procedures for assigning responsibility to the general public and to types of vehicles. An incremental analysis utilizing the results of the AASHO Road Test and supporting analyses of tax payments, and allocations by the cost-function, vehicle-mile and ton-mile methods would be developed.

(4) A thorough review of collection, handling, and exemption regulations and practices applicable to taxes paid by various highway users.

(5) A comparison of highway-user tax distribution with practices in other states and the United States.

(6) An analysis of trends in revenues and costs for highways, roads, and streets, by relating such trends to the needs developed in the engineering survey. Estimates of future revenue would be

developed based on projections of population, travel, vehicle registration and other factors developed in the study of highway transportation economy.

(7) Special analyses would be made of total revenues available for highway programs within urban areas and the availability of funds for overcoming needs on each of the several systems within such areas.

(8) Determination of future revenue levels necessary to develop the needed road systems.

(9) A program would be developed for the equitable and adequate future financing of all public highways, roads, and streets. The cost-allocation and distribution of highway-user revenues, based on proposed road system classifications, would also be presented.

(10) Legislation necessary and desirable to effect collection and distribution of funds for the various road systems would be recommended.

Transportation Economy

The study of transportation economy would include:

(1) A thorough analysis of the fundamental economic factors affecting highway transportation in New Jersey and the services rendered by highways in industry, commerce, agriculture, and recreation within the state.

(2) Forecasts of future highway use, based on projections of trends in population, vehicle registration, and travel. Alternative projections of travel will be made for various assumptions of the rate of highway development and the level of service attained during the projection period. Economic growth considerations will also be given careful consideration.

(3) Various modes of transportation would be analyzed in selecting the optimum transportation plan. The relationship and impact of alternate systems on the general economy of the state would also be evaluated.

Federal Aid

The study of federal aid would include:

(1) An analysis of relationships between federal highway systems, and functional classification and

present administrative classification of all roads and streets.

(2) The allocation of federal aid secondary monies between state and local governments and among the several local units and the distribution of federal aid urban monies would be reviewed and related to needs.

(3) Comparisons would be made between federal highway-user taxation and federal aid apportionments.

(4) Requirements for capital funds for matching federal aid payments would be projected.

(5) Consideration would be given to the probable course of the federal aid highway program after the expiration of the "Highway Trust Fund" in 1972.

Highway Administration

The study of highway administration would include:

(1) An evaluation of statutes pertaining to the administration and operation of the various highway systems.

(2) A review of highway administrative policies and practices at all levels of government.

(3) A study of relationships between highway administration, financial resources, and system classification. The influence of administrative structure on design, construction, and operation of public roads would be determined.

(4) Recommendations would be made on possible improvements in the administrative machinery which would provide more efficient and economical management at all levels of government.

Continuing Process

Periodic review and updating of the data and programs developed in this study is necessary for the continuation of the highway planning function at an optimum level. Procedures would, therefore, be recommended for establishing a continuing study process and for improving the quality of data available for future analysis.

Schedule

While it is not possible to establish a precise schedule until a definite scope of work is agreed to, it is estimated that the total project would require approximately 15 months to complete. Scheduling, however, will be arranged to meet the requirements of the Department. Throughout the work interim

reports would be prepared as desired. It is assumed that a detailed interim report relative to immediate needs would be required within a period of 4 to 6 months after the initiation of the studies.

Cooperation

Throughout the studies, close coordination would be required with the New Jersey State Highway Department and with any legislative or advisory committees that might be established to formulate policies for the project. Presentations of findings and recommendations before these committees and interested groups and, if desired, to the State Legislature, would be an important phase of the study.

Project Staff

We have available, experienced professional staff with in depth experience in this type of study that could be assigned to the project to ensure its efficient operation and completion. We propose to utilize staff specifically oriented to the several important study phases. We would also expect to work closely with personnel of the New Jersey State Highway Department assigned to participate in certain aspects of the study, particularly in the field of investigation phases.

We would expect to present a project organization chart for your consideration and approval prior to starting the work.

Experience and Qualifications

The firm of Wilbur Smith and Associates has had extensive experience in all phases of highway planning and finance. A detailed listing of the experience and professional qualifications of the firm are set forth in the attached brochure.

The firm has recently completed comprehensive highway needs and fiscal studies in the following states: State of Ohio, State of Louisiana, State of Alabama, State of Wyoming, State of Alaska, and State of Utah.

Comprehensive highway finance studies have been completed in the following states: State of Kansas, State of South Dakota, State of Maine, State of Missouri, State of Oklahoma, and State of Arkansas.

We are currently conducting a comprehensive highway needs and fiscal study for the State of Illinois and a comprehensive highway finance study for the State of Georgia. The firm is also currently conducting detailed studies for the State of California relative to tax refunds for agricultural, marine, and aviation gasoline.

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